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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/983,047	10/15/2001	Gregory H. Ames	78381	8178

7590

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Office Of Counsel, Bldg 112T  
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Newport, RI 02841-1708

EXAMINER

THOMAS, COURTNEY D

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/983,047

Applicant(s)

AMES, GREGORY H.

Examiner

Courtney Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Specification***

2. The disclosure is objected to because of the following informalities: Co-pending application entitled "Multiplexed Fiber Laser Sensor System" (serial number: 09/983046) has been allowed. Information relating to its U.S. patent number must be updated when available.

Appropriate correction is required.

### ***Drawings***

3. The drawings are objected to because it appears that several elements in Fig. 3 are labeled (12), resulting in some ambiguity in relating the diagram to the detailed description. Additionally, the Examiner notes that mass (16) is not labeled but it is assumed that this element is the central concentric element within the diagram (coincidentally labeled (12)). The labeling of element (15) leads to an incorrect association of element (16). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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***Claim Rejections - 35 USC § 102***

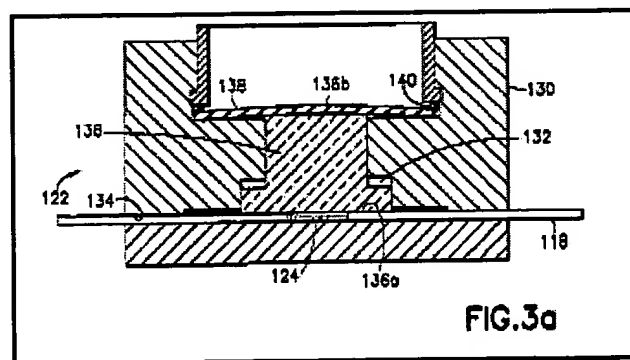
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 2, 6, 8, 9 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Schroeder et al. (U.S. Patent 6,218,661).



6.

Figure 3a - U.S. Patent 6,218,661 to Schroeder et al., filed 10.16.98

7. As per claim 1, 11 and 13, Schroeder et al. disclose an apparatus comprising at least one optical fiber (118) (see also Fig. 4 – not shown above – 234, 235) supported in a structure (130);

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a movable mass (136) supported within the structure (130) and means (Fig. 1, not shown above; i.e. 12, 14, 16, 18, 20, 22, 24, 26) for detecting changes in tension in the at least one optical fiber due to movement of the movable mass (132) – (see abstract, Figs. 1-3).

8. As per claim 2, Schroeder et al. disclose an apparatus wherein the detecting means comprise at least one fiber optic Bragg grating (Fig. 3, 124) written into a core of each of said optical fibers.

9. As per claim 6, Schroeder et al. disclose an apparatus wherein detecting means comprise Bragg grating laser sensor associated with each optical fiber (abstract; Figs. 1-3).

10. As per claims 8 and 9, Schroeder et al. disclose an apparatus wherein the structure comprises a cage (Fig. 3 above) and wherein a gap is provided between each side of the mass and cage; the gap being sufficiently small to limit motion of the mass in shock or high acceleration and to limit the maximum tension seen by each of the optical fibers.

11. As per claims 12 and 14, Schroeder et al. disclose an apparatus wherein the optical fibers are the only deformable structure within the sensor (see Fig. 4, not shown above).

#### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 3-5, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroeder et al. (U.S. Patent 6,218,661).

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14. As per claims 3-5, Schroeder et al. do not explicitly disclose an apparatus wherein a plurality of optical fibers has a first fiber optic Bragg grating associated with a first reflective wavelength and a plurality of optical fibers having a second fiber optic Bragg grating associated with a second reflective wavelength (the second reflective wavelength being different from the first reflective wavelength).

15. It would have been obvious to modify the apparatus of Schroeder et al. such that it incorporated the aforementioned limitations. One would have been motivated to make such a modification so that sense impressions of a plurality of optical fibers can be identified as being a variant with respect to differing optical gratings. A benefit of such modification is that each fiber is configured to generate characteristic signals indicative to a particular sense impression.

16. As per claim 7, Schroeder et al. do not explicitly disclose an apparatus wherein the movable mass is surrounded by optical fibers and being in contact with optical fibers.

17. It would have been obvious to modify the apparatus of Schroeder et al. such that it incorporated the aforementioned limitation. One would have been motivated to make such a modification so that the device is configured to sense changes within the structure relative to the movable mass. A benefit of such a modification is that the device is now capable of relating sense impressions relative the movable mass and configured to identify sense variations by position.

18. As per claim 10, Schroeder et al. do not explicitly disclose an apparatus wherein a single optical fiber has a serpentine configuration with a plurality of legs and wherein the detecting means comprises a detector in each of said legs.

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19. It would have been obvious to modify the apparatus of Schroeder et al. such that it incorporated the aforementioned limitation. One would have been motivated to make such a modification so that the device is configured to sense changes within the structure relative to length of the enclosed optical fiber. A benefit of such a modification is that the device is configured to relate sense impressions relative the movable mass and configured to identify sense variations throughout the fiber's length; this enables the determination of the location specific forces present within the apparatus.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

March 4, 2003

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